

REMARKS

Favorable reconsideration of this application, as presently amended, is respectfully requested.

Claims 1 and 5-14 remain active in this application. Claims 1, 5, and 6 have been amended.

Applicants note that the present Action has been made a Final Rejection. Applicants submit that this is improper and that the present Action should have been non-final. It is noted that the Examiner has cited and applied four new references in the main rejection. Applicants submit that this was not necessitated by the previous amendment. The previous amendment included a number of changes in the language of the claims which was suggested by the Examiner. Other claims were also combined in the amendment. For example, Claim 1 which represents the main independent claim includes a number of changes suggested by the Examiner to improve its form and adds limitations previously found in Claim 2. These changes do not necessitate the citation and application of new references, and accordingly the Examiner is incorrect in making this rejection final. In view of this, Applicants request that the previous response be made non-final.

In paragraph 4 of the Official Action, the Examiner rejected Claims 5 and 6 as being indefinite. The Examiner points out that the language of Claims 5 and 6 is not appropriately applied to both layers of Claim 1. Applicants agree with the Examiner and have now changed the language of the two claims to make it clear that the limitations refer only to the first layer. This returns the meaning of Claims 5 and 6 to that originally presented in the original claims.

Before discussing in detail the remaining rejection of the claims, it is believed that a brief review of some of the significant aspect of the present invention is in order. The present

invention relates to a process and apparatus for manufacturing a composite product. Three or four layers of material are combined on a conveyor. At least one of the layers is fabric formed by glass threads including commingled threads of glass filaments and thermoplastic filaments. At least one other layer includes similar threads which are either continuous or chopped and which are deposited loosely either on the conveyor or on the fabric. In one embodiment, the fabric is sandwiched on both sides by chopped threads. In a second embodiment the chopped threads are sandwiched between two fabric layers. In a third embodiment continuous threads are sandwiched between two fabric layers. The layered material is then heated, compressed and cooled before being cut into sheets or wound onto a drum.

The Examiner rejected the claims as being obvious over five references combined into a four-way rejection, with two of the references being alternatives for the four reference. Four of these five references are newly cited.

First, Applicants submit that it would not be obvious to one skilled in the art to make the combination of the five references suggested by the Examiner. It appears the Examiner has tried to piece together a number of elements of the device from different unassociated sources. The Examiner has not indicated appropriate motivation for one skilled in the art to combine the various pieces together. Applicants submit that without this motivation there is no reason for one skilled in the art to utilize the various pieces into a single unit. Thus, the Examiner has suggested that it would be obvious to use the conveyor, heat and pressure application of either of two of the references to manufacture a composite suggested by a third reference using the heated pressing rollers of Murphy where the use of fabrics formed from commingled fibers is shown by O'Connor. Applicants submit that the Examiner has

combined various pieces of apparatus and types of materials from five different sources in this art without any motivation of the need to combine them or in any reason why one skilled in the art would have a reason to even consider making such a combination. For these reasons, Applicants submit that the present rejection is improper.

In addition, Applicants submit that even if the five references could be combined as suggested by the Examiner, they still do not teach the present invention as claimed. Even if the references do teach the idea of conveying a composite and applying heat and pressure thereto using heated pressing rollers where the layers are formed from commingled fibers, it still would not teach the idea of utilizing threads which are not formed into a fabric as one or more of the layers. Thus, the Examiner states that the Murphy reference shows lamination of layers where each of the layers has thermoplastic and reinforcing filaments. However, in each of these cases the layers are formed of a fabric.

The Examiner cited the O'Connor reference to teach that idea of commingled filaments of thermoplastic and reinforcing filaments. However, these reference also does not teach the use layer of fibers which are not formed into a fabric. The Examiner cited the European reference to show the use of a double-band press. However, this reference also does not teach the use of layer of fiber which is not formed into a fabric. Likewise, Koba et al or Li et al do not teach layers formed of filaments which are not combined into a fabric.

Applicants have made this more clear by defining the layer of glass threads in line 5 of Claim 1 as being made of "loose" glass threads. This is to point out that the fibers are merely laid on either the conveyor or the fabric layer without being formed into a fabric or a batt by itself. None of the references consider the possibility of layers being formed of such loose glass threads but instead, in each of the references, the layer is first formed into a fabric

or similar cohesive layer rather than being left in the loose or unattached state. Accordingly, Applicants submit that Claim 1 and dependent Claims 5-12 are patentable over this combination of references.

Claims 5 and 6 depend from Claim 1 and as such are also considered to be allowable. In addition, these claims recite the two types of loose glass threads, named as chopped and continuous. As indicated above, the references do not teach such layer.

Claims 7-10 depend from Claim 1 and as such are also considered to be allowable. Claim 7 indicates that the two layers are heated and compressed before being cooled and cut. Claims 8, 9 and 10 further define this process by indicating the specific number and composition of the layers. These three claims relate directly to the embodiments shown in Figures 1, 2, and 3, respectively. These particular arrangements of layers are not seen in the references and accordingly these claims are believed to be additionally allowable.

Claims 11 and 12 further depend from allowable claims and are also considered to be allowable. These claims further relate to the relative width of the sheets and the relative weight of glass in the material.

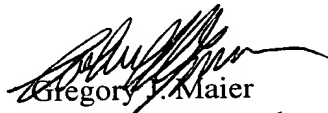
Claims 13 and 14 are apparatus claims reciting in detail the storage and deposition of the threads onto the conveyor and the subsequent handing of the composite. Applicants submit that these claims define over the references cited since these claims do not teach such an apparatus. Thus the references do not show as defined in Claim 13, a storage device, a cutter and two rolls of fabric. Likewise, the references do not show as specified in Claim 14, a storage for threads and two devices, one upstream and one downstream for holding two roll of fabric each. The Examiner merely states that use of a chopping means would be obvious and the reels for supplying fabric are conventional in the art. Applicants submit that the

present invention defined by Claims 13 and 14 is not shown or suggested by the references and accordingly, Claims 13 and 14 are allowable thereover.

In summary then, it is respectfully submitted that the references of record whether taken individually or in combination do not anticipate or obviate the structure which is fully disclosed and positively claimed in the present application. In view of this, it is submitted that the inventions defined by each of Claims 1 and 5-14 are patentable and a favorable reconsideration and early allowance of the present application is therefore respectfully requested.

Respectfully submitted,

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